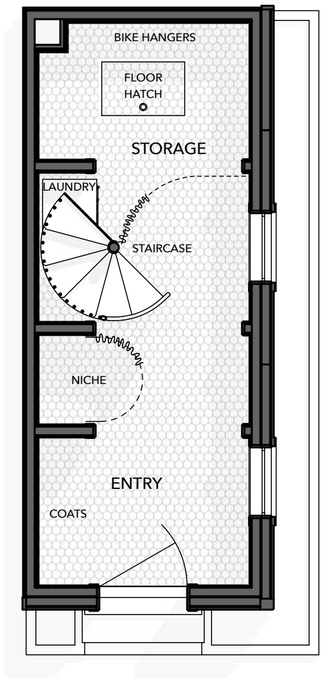
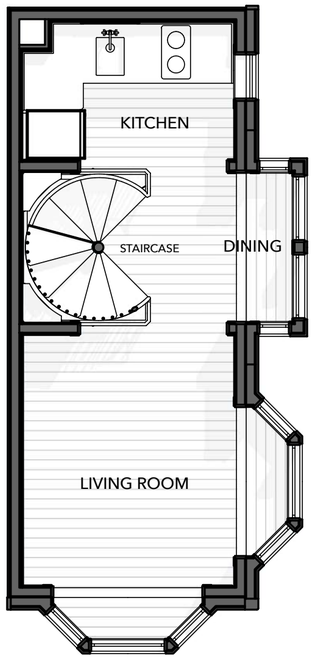
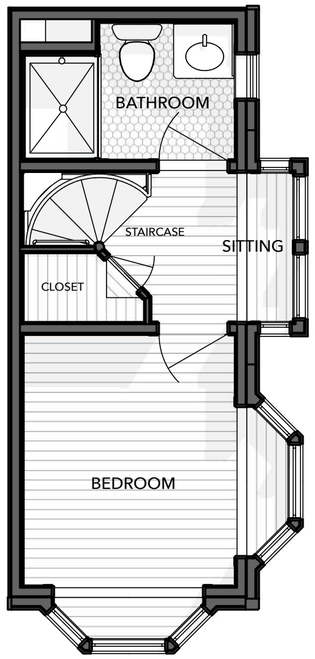


GROUND LEVEL



SECOND LEVEL



THIRD LEVEL

① **BOOKEND** VARIATION: PRESENTATION FLOOR PLANS

SCALE: 1/4" = 1'-0"

NOTES FOR THE "BOOKEND" VARIATION

1. THE BOOKEND UNIT IS THE PRIMARY FOCUS OF THE PLANS, BUT THE DESIGN ALSO ALLOWS FOR A MORE RESTRICTED "BOUNDED" UNIT, WHICH IS ALSO EXPLAINED AND DEPICTED ON THIS PAGE.

2. A BOOKEND UNIT IS MEANT TO BE PUT AGAINST A BLANK WALL. IT CAN BE INCLUDED NEXT TO A BOUNDED UNIT (WHICH ARE MADE TO BE FLANKED BY OTHERS). BLANK WALLS BLIGHT STREETS, SO TOWNHOUSE PLANS SHOULD ALSO HAVE A BOOKEND VERSION.

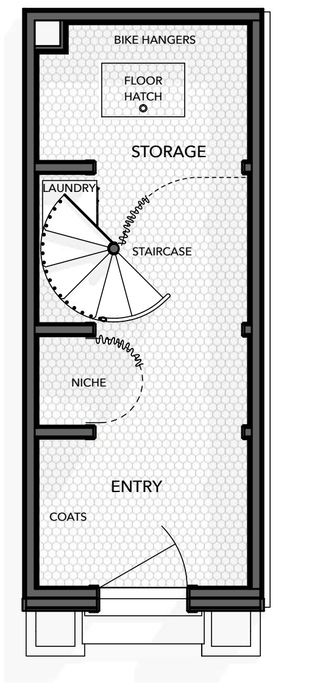
3. EVEN A SINGLE, SMALL BOOKEND HOUSE, IF PLACED TO COVER A BLANK WALL OF MODERNISM, ALWAYS IMPROVES A STREETSCAPE.

4. THE BOOKEND HAS MANY WINDOWS, SO PRIVACY CAN BE AN ISSUE. HOWEVER, AT NO SACRIFICE, YOU CAN PUT CURTAINS OR INTERIOR LOUVERED SHUTTERS AT THE BOTTOM WINDOW SASHES. RAISED LEVELS ALREADY BLOCK SITELINES FROM THE SIDEWALK.

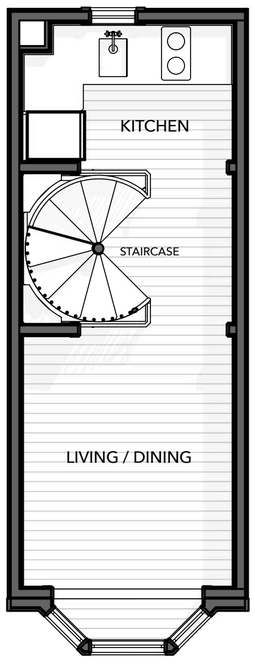
5. THIS TINY DESIGN FOLLOWS BUILDING CODES, BUT IT PUSHES THE LIMITS OF WHAT WOULD BE ACCEPTABLE. FOR INSTANCE, THE CEILINGS ARE AS LOW AS POSSIBLE, THE STAIRCASE IS AS SMALL AS POSSIBLE, AND THE INTERIOR CLEARANCES ARE OFTEN AS TIGHT AS WHAT'S ALLOWED BY CODE. DON'T MOVE ANY WALL BY EVEN AN INCH UNLESS YOU UNDERSTAND THE RELEVANT CODE REQ'TS.

6. THE "BOX MODULE" OF BOTH THE BOOKEND AND BOUNDED UNITS CAN BE BUILT BASICALLY THE SAME, WITH THE NUMBER OF FACADE MODULES BEING THE MAJOR DIFFERENCE. FOR THIS REASON, THEY CAN BE BUILT TOGETHER AND TAKE ADVANTAGE OF ANY ECONOMIES OF SCALE. *PAGES A40 & A50 DEPICT THESE IDEAS.*

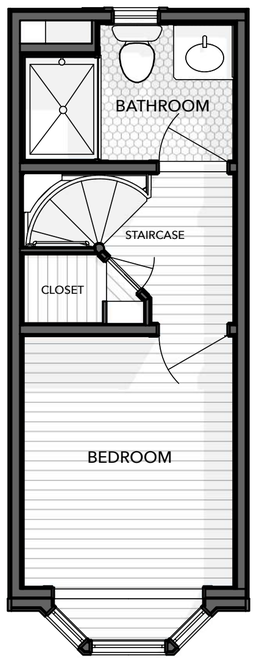
7. A MAJOR IDEA WAS TO MAKE THE MODULES SMALL ENOUGH TO BE TRANSPORTED THROUGH CITIES WITH NO SPECIAL PERMITS. THE BOX MODULE IS THE SIZE OF A NORMAL 20' SHIPPING CONTAINER.



GROUND LEVEL



SECOND LEVEL



THIRD LEVEL

② **BOUNDED** VARIATION: PRESENTATION FLOOR PLANS

SCALE: 1/4" = 1'-0"

NOTES FOR THE "BOUNDED" VARIATION

1. A BOUNDED UNIT IS FLANKED BY TWO NEIGHBORING BUILDINGS. SO ITS TWO SIDE WALLS CANNOT HAVE WINDOWS.

2. THE BOUNDED UNIT MAKES MORE SENSE IF BUILT WITH OTHERS. THREE OF THEM COULD FIT ON A STANDARD 25-FOOT WIDE LOT.

3. THE INTERNATIONAL BUILDING CODE DEFINES A "TOWNHOUSE" AS BEING A HOUSE BUILT IN A GROUP OF 3 OR MORE. THE BEST TOWNHOUSES ARE USUALLY BUILT INDIVIDUALLY, BUT THIS DESIGN CAN ALSO BE BUILT IN GROUPS, LIKE TRIPLEXES AND FOURPLEXES.

4. THE IBC ALSO STATES THAT A TOWNHOUSE NEEDS TO BE OPEN ON TWO SIDES. SO THE BATHROOM AND KITCHEN WILL REQUIRE THE WINDOWS IN THE BACK FOR THIS BOUNDED UNIT TO QUALIFY.

5. THE IBC IS MORE STRICT THAN THE IRC (RESIDENTIAL BUILDING CODE), BUT HAS EXCEPTIONS FOR DWELLING UNITS. LIKE HOW IT ALLOWS SPIRAL STAIRCASES AND RELAXED DOOR CLEARANCES.

6. THIS BOUNDED UNIT IS AT THE LIMITS OF WHAT'S ALLOWED BY THE BUILDING CODE. FOR INSTANCE, THE BEDROOM IS PRECISELY 70 SQUARE FEET IN FLOOR AREA (THAT BAY WINDOW IS NEEDED). ALSO, THE STAIRCASE LANDINGS ARE AS SMALL AS THEY CAN BE.

7. FOR NECESSARY FIRE RESISTANCE, 2 LAYERS OF GYPSUM BOARD ARE REQUIRED AT THE SIDE WALLS. SINCE THIS DESIGN HAS ONLY AN INCH OR TWO OF WIGGLE ROOM, DON'T MOVE ANY WALLS UNLESS YOU HAVE A THOROUGH UNDERSTANDING OF THE CODE.

8. "BOUNDED UNIT" IS A TERM I INVENTED– AS IT SEEMS THIS MOST COMMON ARCHETYPE OF TOWNHOUSES HAS NO ACTUAL NAME. "BOUNDED" GOES ALONG WELL WITH "BOOKEND", METHINKS. BUT WHAT ABOUT "BINDING UNIT", FOR A MORE LITERARY FLARE?

CC ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

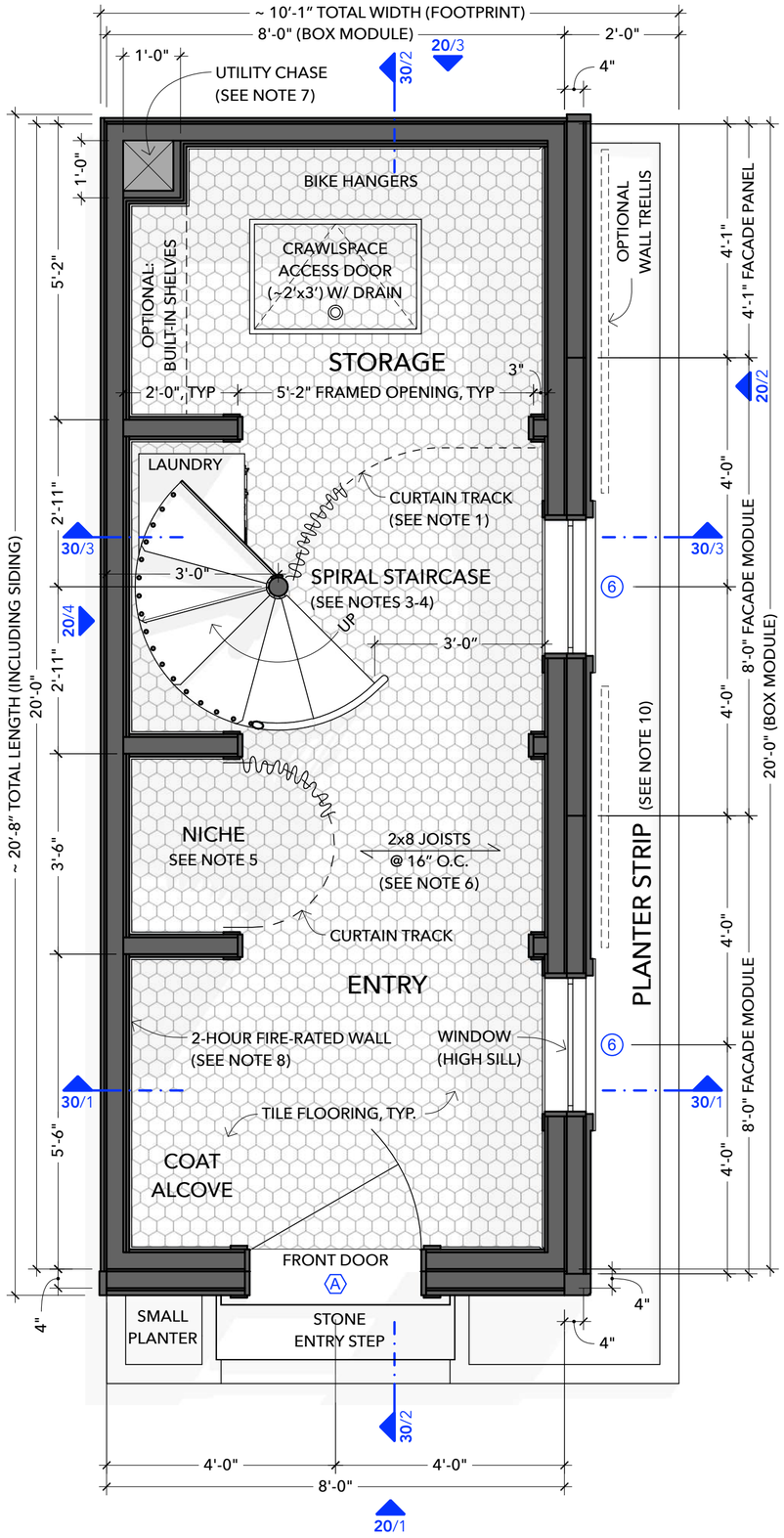
BOOKEND & BOUNDED UNITS

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

\+ Thank you to everyone who supports my work!

PRESENTATION PLANS (BOTH VARIATIONS)

10



1 1ST FLOOR PLAN
SCALE: 1/2″ = 1′-0″

DOORS

- (A) 36x80 6-PANEL EXT DOOR W/ 2 LITES
- (B) 28x80 5-PANEL INTERIOR DOOR
- (C) 18x80 INT CLOSET DR (OPT: LOUVERS)

WINDOWS

- (1) 30x56 DH WINDOW (SEE NOTE 1)
- (2) 26x56 DH WINDOW (SQUARE BAY)
- (3) 18x56 DH WINDOW (ANGLED BAY)
- (4) 12x56 DH WINDOW (SQUARE BAY)
- (5) 18x36 DH WINDOW (BATH & KIT)
- (6) 24x20 AWNING WINDOW

← PLAN NOTES

1. CURTAINS MUFFLE SOUNDS AND HIDE MESSES FROM VISITORS. CEILING RODS OR TRACKS ARE EASY TO MAKE CURVED. THEY'RE ECONOMICAL AND ADAPTABLE.

2. INTERIOR WALLS WITH CASED OPENINGS SERVE AS STRUCTURAL BUTTRESSING.

3. SPIRAL STAIRCASE TO HAVE AN OUTERMOST DIAMETER OF 60 INCHES OR LESS.

4. SPIRAL STAIRCASE: 6′-6″ MIN HEADROOM – 10 RISERS @ 9.5″ – 26″ MIN WIDTH.

5. NICHE HAS A CURTAINED ENCLOSURE, SO IT CAN HIDE ANY MESSY FUNCTIONS. LIKE A DESK, STACKED LAUNDRY MACHINES, UTILITY BOXES, BULK STORAGE, ETC.

6. STRUCTURE ASSUMES A MODULAR, OFFSITE MANUFACTURING PROCESS. THE FLOOR JOISTS OF ONE MODULE ARE PLACED DIRECTLY OVER THE CEILING JOISTS OF THE ONE BELOW. MAY NEED TO BE 12″ O.C. BASED ON TRANSPORT STRESSES.

7. UTILITY CHASE MAKES IT EASIER TO CONNECT PIPES OF SEPARATE MODULES. IT MAY REQUIRE FIRE BLOCKING AT EACH LEVEL, AND GYP BD SHEATHING INSIDE.

8. FIRE WALL ASSEMBLY: INTERIOR HAS 2 LAYERS OF 5/8″ TYPE X GYPSUM BOARD. MINERAL WOOL INSULATION AT 2x4 STUDS (16″ CENTERS). FIRE-RATED EXTERIOR SHEATHING & WRB. SIDING MATERIALS: CORRUGATED STEEL OR FIBERCEMENT.

9. SINCE DOOR IS WITHIN 3 FEET OF NEIGHBORING BUILDING (PROPERTY LINE) IT NEEDS TO BE FIRE-RATED. THIS SHOULD BE FAIRLY SIMPLE TO ACCOMODATE.

10. PLANTER STRIP MAKES THE SIDEWALK MORE PLEASANT, USING A NATURAL TRANSITION AT THE WALL. IT MIGHT BE LOCATED IN THE PUBLIC RIGHT-OF-WAY, ESPECIALLY IF THE BAY WINDOWS ARE ALSO ALLOWED TO PROJECT INTO IT. THIS PLANTING BUFFER CAN BE QUITE THIN, YET IT STILL IMPROVES THE STREETSCAPE.

REFLECTED CEILING PLAN / ELECTRICAL NOTES →

1. PROVIDE AUTOMATIC SPRINKLERS FOR FIRE SUPPRESSION. FEW ARE REQUIRED.

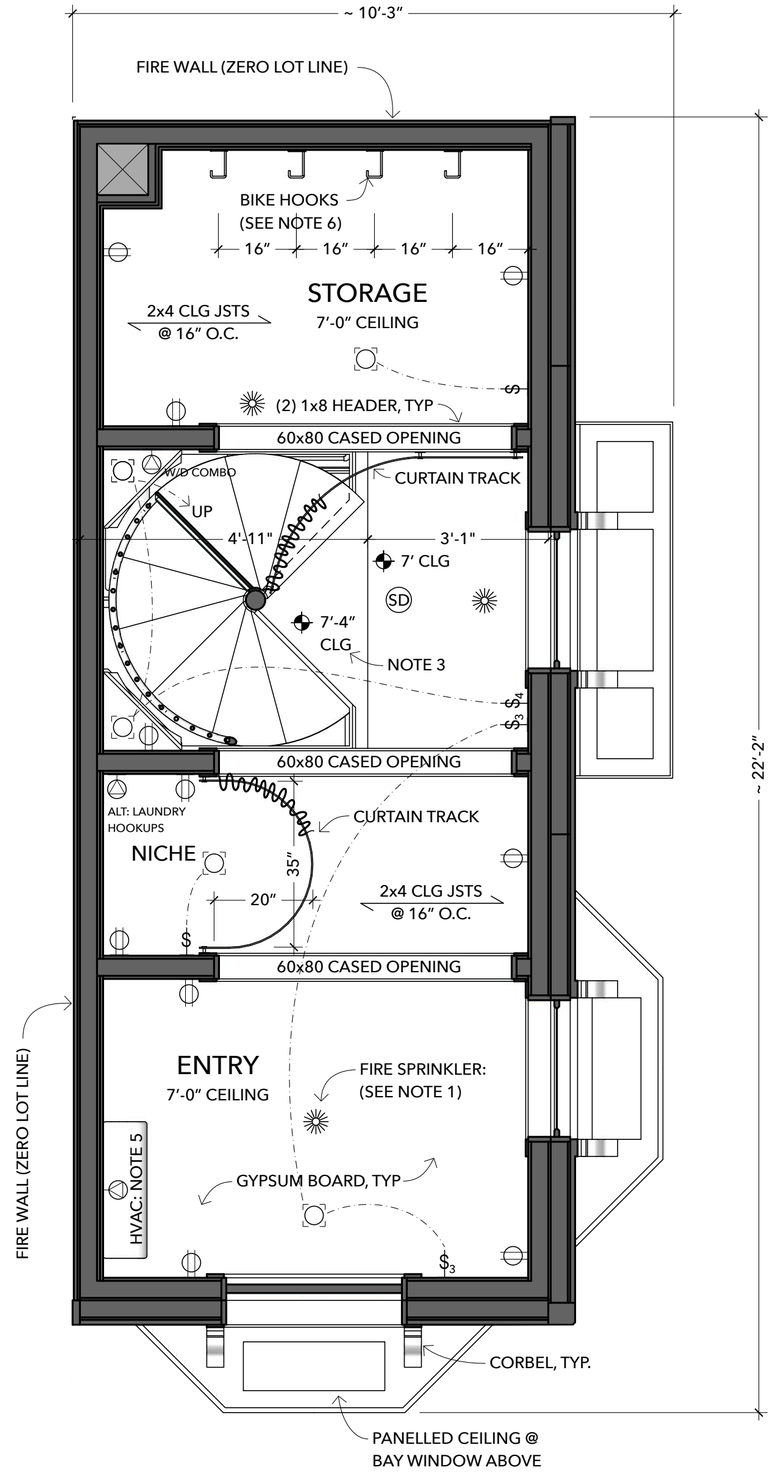
2. FLOOR & CEILING AT EACH LEVEL ARE DIAGONALLY BRACED AT THE STAIRCASE OPENINGS, FORMING A ROBUST SHELF AT EACH FLOOR LEVEL. SMALL LED LIGHTS ARE RECESSED AT THE TINY CEILINGS AND CONNECTED WITH 4-WAY SWITCHES.

3. AT STAIR LANDINGS, CEILING JOISTS ARE SET BACK FOR 6′-6″ MIN HEADROOM.

4. TO IMPROVE SOUNDPROOFING, TRY TO AVOID POKING HOLES IN FIRE WALLS.

5. HVAC: DUCTLESS MINI SPLITS (ONE AT TOP OF HOUSE, ONE AT BOTTOM).

6. ENSURE ADEQUATE BLOCKING TO SUPPORT WEIGHT OF BIKES. HOOKS TO BE MOUNTED IN STAGGERED MANNER TO ACCOMODATE 4 BIKES. SEE MFR SPECS.



2 LEVEL 1 CEILING PLAN / ELECTRICAL
SCALE: 1/2″ = 1′-0″

(cc) ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

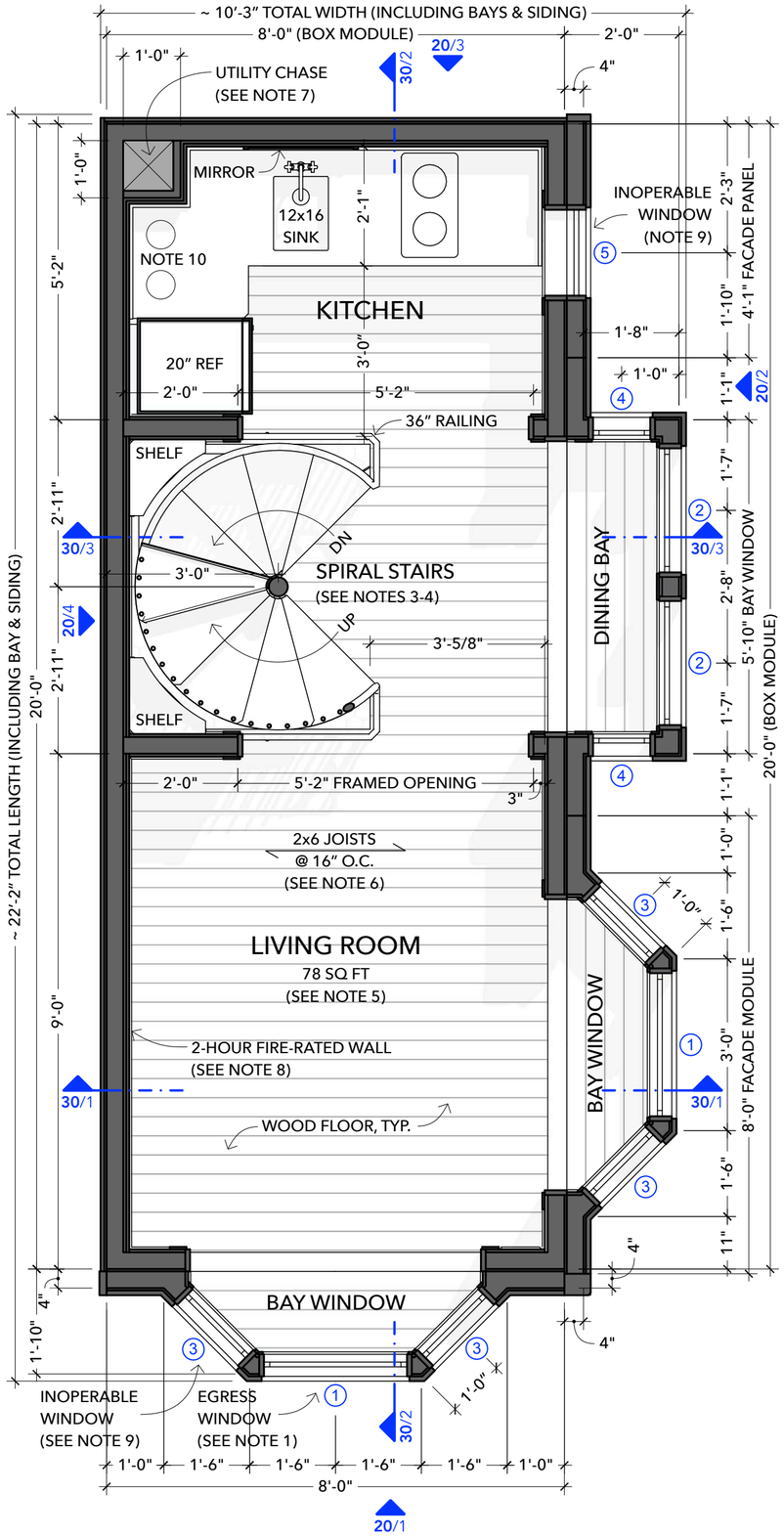
THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

+ Thank you to everyone who supports my work!

1ST FLOOR PLAN & RCP/ ELECTRICAL

11



1 2ND FLOOR PLAN
SCALE: 1/2" = 1′-0"

DOORS

- (A) 36x80 6-PANEL EXT DOOR W/ 2 LITES
- (B) 28x80 5-PANEL INTERIOR DOOR
- (C) 18x80 INT CLOSET DR (OPT: LOUVERS)

WINDOWS

- (1) 30x56 DH WINDOW (SEE NOTE 1)
- (2) 26x56 DH WINDOW (SQUARE BAY)
- (3) 18x56 DH WINDOW (ANGLED BAY)
- (4) 12x56 DH WINDOW (SQUARE BAY)
- (5) 18x36 DH WINDOW (BATH & KIT)
- (6) 24x20 AWNING WINDOW

← PLAN NOTES

1. EGRESS WINDOW: 5.7 FT² MIN OPENING (LOWER SASH), SILL: 24"

2. INTERIOR WALLS WITH CASED OPENINGS SERVE AS STRUCTURAL BUTTRESSING.

3. SPIRAL STAIRCASE TO HAVE AN OUTERMOST DIAMETER OF 60 INCHES OR LESS.

4. SPIRAL STAIRCASE: 6′-6" MIN HEADROOM – 10 RISERS @ 9.5" – 26" MIN WIDTH.

5. IF KITCHEN & DINING AREAS ARE INCLUDED, LIVING AREA IS ABOUT 150 SQ FT.

6. STRUCTURE ASSUMES A MODULAR, OFFSITE MANUFACTURING PROCESS. THE FLOOR JOISTS OF ONE MODULE ARE PLACED DIRECTLY OVER THE CEILING JOISTS OF THE ONE BELOW. MAY NEED TO BE 12" O.C. BASED ON TRANSPORT STRESSES. THOUGH SMALL AS A FLOOR JOIST, A 2x6 CAN SPAN THE 7′-5" DISTANCE. BUT IF NOT MADE MODULAR, 2x10 JOISTS ALLOW THE SAME FLOOR-TO-FLOOR HEIGHT.

7. UTILITY CHASE MAKES IT EASIER TO CONNECT PIPES OF SEPARATE MODULES. IT MAY REQUIRE FIRE BLOCKING AT EACH LEVEL, AND GYP BD SHEATHING INSIDE.

8. FIRE WALL ASSEMBLY: INTERIOR HAS 2 LAYERS OF 5/8" TYPE X GYPSUM BOARD. MINERAL WOOL INSULATION AT 2x4 STUDS (16" CENTERS). FIRE-RATED WRB & SHEATHING. SIDING (HIDDEN): CORRUGATED STEEL OR FIBERCEMENT PANELS.

9. WINDOWS WITHIN 3 FEET OF NEIGHBORING BUILDING (PROPERTY LINE) NEED TO BE OF FIRE-RESISTANT TEMPERED GLASS, USUALLY INOPERABLE PER CODE.

10. OPTIONAL COUNTERTOP HOLE RECEPTACLES FOR WASTE BINS BELOW.

REFLECTED CEILING PLAN / ELECTRICAL NOTES →

1. PROVIDE AUTOMATIC SPRINKLERS FOR FIRE SUPPRESSION. THIS IS REQUIRED BY CODE ANYWAY, BUT IT'S ALSO NECESSARY FOR THE WINDOW PLACEMENTS.

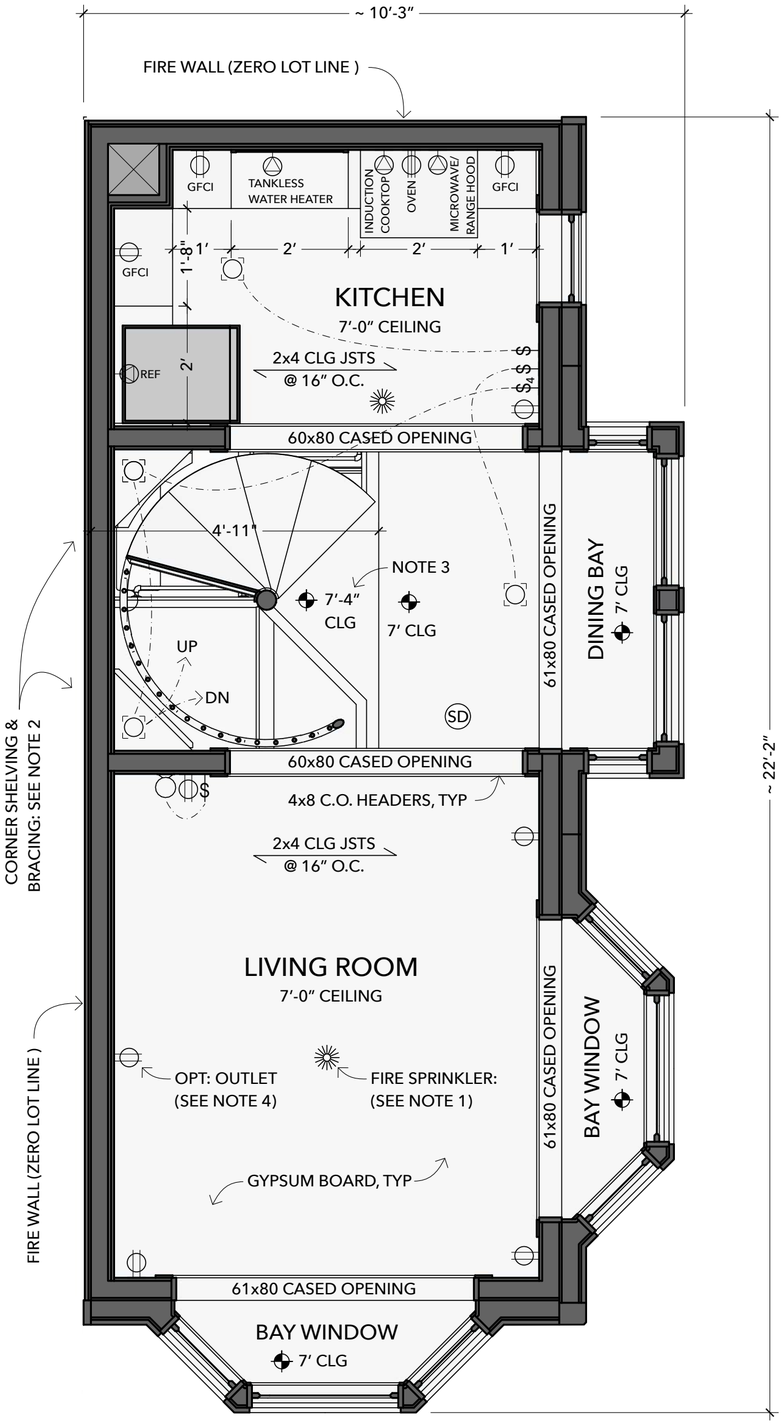
2. FLOOR & CEILING AT EACH LEVEL ARE DIAGONALLY BRACED AT THE STAIRCASE OPENINGS, FORMING A ROBUST SHELF AT EACH FLOOR LEVEL. SMALL LED LIGHTS ARE RECESSED AT THE TINY CEILINGS AND CONNECTED WITH 4-WAY SWITCHES.

3. AT STAIR LANDINGS, CEILING JOISTS ARE SET BACK FOR 6′-6" MIN HEADROOM.

4. TO IMPROVE SOUNDPROOFING, TRY TO AVOID POKING HOLES IN FIRE WALLS.

5. AVOID PLACING ELECTRICAL FIXTURES WITHIN WINDOW BAYS. THAT WOULD COMPLICATE THE CONNECTIONS BETWEEN THE BOX MODULE & FACADE PANELS.

6. BECAUSE OF THE LOW CEILINGS, A RECESSED LIGHT IS BEST FOR THE KITCHEN. BUT IF CABINET DOOR SWINGS DIDN'T CONFLICT, A PENDANT LIGHT CAN WORK.



2 LEVEL 2 CEILING PLAN / ELECTRICAL
SCALE: 1/2" = 1′-0"

© ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

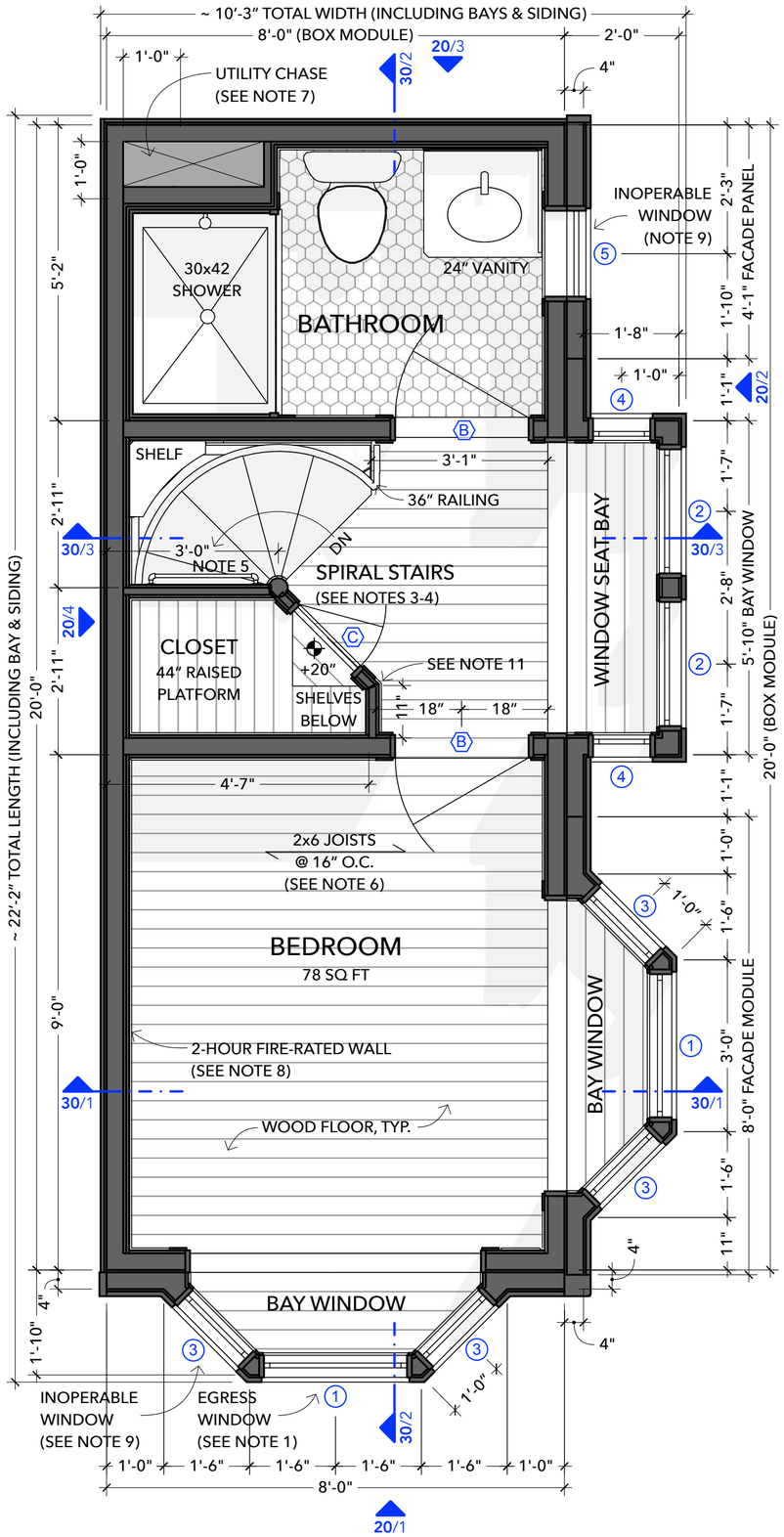
THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

+ Thank you to everyone who supports my work!

2ND FLOOR PLAN & RCP/ ELECTRICAL

12



1 3RD FLOOR PLAN

SCALE: 1/2″ = 1′-0″

DOORS

- (A) 36x80 6-PANEL EXT DOOR W/ 2 LITES
- (B) 28x80 5-PANEL INTERIOR DOOR
- (C) 18x80 INT CLOSET DR (OPT: LOUVERS)

WINDOWS

- (1) 30x56 DH WINDOW (SEE NOTE 1)
- (2) 26x56 DH WINDOW (SQUARE BAY)
- (3) 18x56 DH WINDOW (ANGLED BAY)
- (4) 12x56 DH WINDOW (SQUARE BAY)
- (5) 18x36 DH WINDOW (BATH & KIT)
- (6) 24x20 AWNING WINDOW

← PLAN NOTES

1. EGRESS WINDOW: 5.7 FT² MIN OPENING (LOWER SASH), SILL: 24″. DUE TO MANY CONSTRAINTS, THIS DOUBLE-HUNG WINDOW MUST BE AS SMALL AS ALLOWABLE.

2. INTERIOR WALLS WITH CASED OPENINGS SERVE AS STRUCTURAL BUTTRESSING.

3. SPIRAL STAIRCASE TO HAVE AN OUTERMOST DIAMETER OF 60 INCHES OR LESS.

4. SPIRAL STAIRCASE: 6′-6″ MIN HEADROOM – 10 RISERS @ 9.5″ – 26″ MIN WIDTH.

5. SKYLIGHT/STAIRCASE AREA HAS WALL RUNGS/HANDHOLDS TO MAKE IT EASIER TO REACH THE SKYLIGHT (LIKE A BUILT-IN LADDER) AND TO SERVE AS GRAB BARS. RUNGS CAN ALSO BE FOR OTHER FUNCTIONS. ENSURE ADEQUATE BLOCKING.

6. STRUCTURE ASSUMES A MODULAR, OFFSITE MANUFACTURING PROCESS. THE FLOOR JOISTS OF ONE MODULE ARE PLACED DIRECTLY OVER THE CEILING JOISTS OF THE ONE BELOW. MAY NEED TO BE 12″ O.C. BASED ON TRANSPORT STRESSES. THOUGH SMALL AS A FLOOR JOIST, A 2x6 CAN SPAN THE 7′-5″ DISTANCE. BUT IF NOT MADE MODULAR, 2x10 JOISTS ALLOW FOR SAME FLOOR-TO-FLOOR HEIGHT.

7. UTILITY CHASE MAKES IT EASIER TO CONNECT PIPES OF SEPARATE MODULES. IT MAY REQUIRE FIRE BLOCKING AT EACH LEVEL, AND GYP BD SHEATHING INSIDE.

8. FIRE WALL ASSEMBLY: INTERIOR HAS 2 LAYERS OF 5/8″ TYPE X GYPSUM BOARD. MINERAL WOOL INSULATION AT 2x4 STUDS (16″ CENTERS). FIRE-RATED EXTERIOR SHEATHING & WRB. SIDING MATERIALS: CORRUGATED STEEL OR FIBERCEMENT.

9. WINDOWS WITHIN 3 FEET OF NEIGHBORING BUILDING (PROPERTY LINE) NEED TO BE OF FIRE-RESISTANT TEMPERED GLASS, USUALLY INOPERABLE PER CODE.

10. OPTIONAL COUNTERTOP HOLE RECEPTACLES FOR WASTE BINS BELOW.

11. NON-LOADBEARING WALLS AT CLOSET HAVE 1.5″ THIN FRAME W/ SHEATHING.

REFLECTED CEILING PLAN / ELECTRICAL NOTES →

1. PROVIDE AUTOMATIC FIRE SPRINKLERS. THESE ARE USUALLY REQUIRED BY CODE ANYWAY, BUT IT'S ALSO NECESSARY FOR THE WINDOW PLACEMENTS.

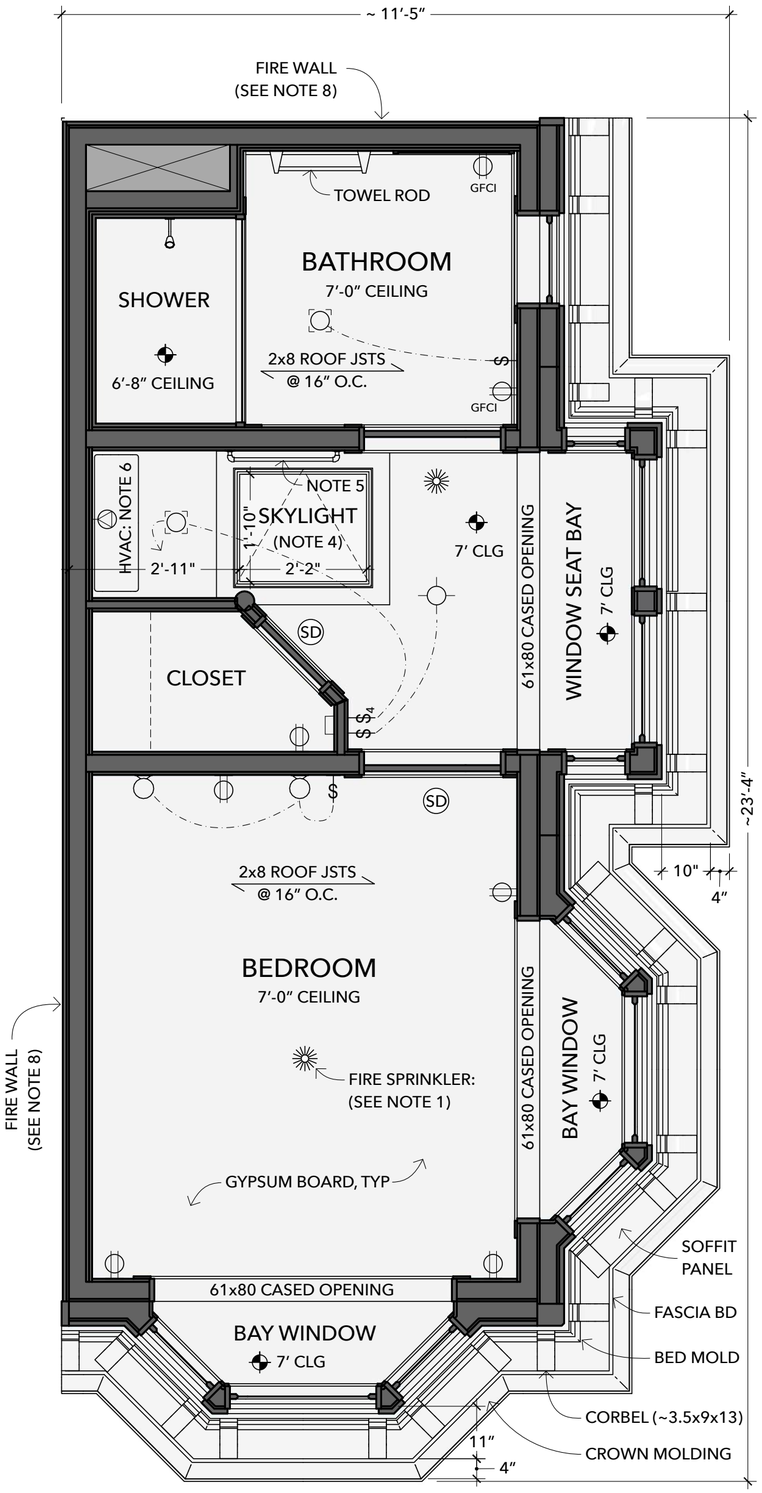
2. AVOID PLACING ELECTRICAL FIXTURES WITHIN WINDOW BAYS. THAT WOULD COMPLICATE THE CONNECTIONS BETWEEN THE BOX MODULE & FACADE PANELS.

3. TO IMPROVE SOUNDPROOFING, TRY TO AVOID POKING HOLES IN FIRE WALLS.

4. SKYLIGHT IS OPERABLE, FUNCTIONING ALSO AS THE ROOF ACCESS HATCH.

5. SKYLIGHT/STAIRCASE AREA HAS WALL RUNGS/HANDHOLDS TO MAKE IT EASIER TO REACH THE SKYLIGHT (LIKE A BUILT-IN LADDER) AND TO SERVE AS GRAB BARS. ENSURE ADEQUATE BLOCKING.

6. HVAC: DUCTLESS MINI SPLITS (ONE AT TOP OF HOUSE, ONE AT BOTTOM).



2 LEVEL 3 CEILING PLAN / ELECTRICAL

SCALE: 1/2″ = 1′-0″

CC ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

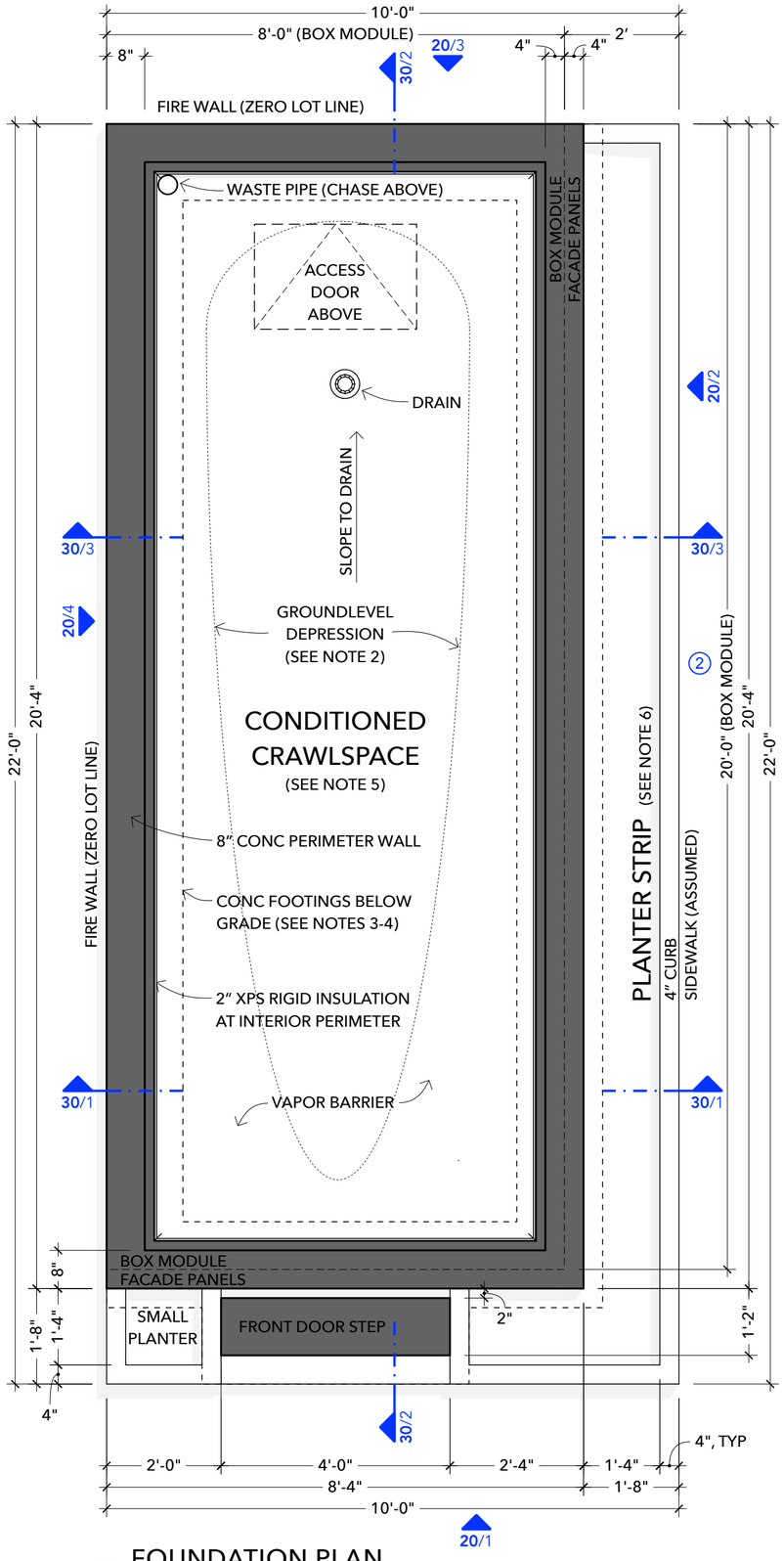
THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

\+ Thank you to everyone who supports my work!

3RD FLOOR PLAN & RCP/ ELECTRICAL

13



1 FOUNDATION PLAN
SCALE: 1/2" = 1'-0"

DOORS

- (A) 36x80 6-PANEL EXT DOOR W/ 2 LITES
- (B) 28x80 5-PANEL INTERIOR DOOR
- (C) 18x80 INT CLOSET DR (OPT: LOUVERS)

WINDOWS

- (1) 30x56 DH WINDOW (SEE NOTE 1)
- (2) 26x56 DH WINDOW (SQUARE BAY)
- (3) 18x56 DH WINDOW (ANGLED BAY)
- (4) 12x56 DH WINDOW (SQUARE BAY)
- (5) 18x36 DH WINDOW (BATH & KIT)
- (6) 24x20 AWNING WINDOW

← FOUNDATION NOTES

1. THIS DESIGN IS ONLY A TEMPLATE. FOUNDATION DESIGNS MUST ALWAYS BE SITE-SPECIFIC, ENGINEERED AND APPROVED PER LOCAL REQUIREMENTS.

2. A MINIMUM 18" HEAD CLEARANCE IS NECESSARY FOR MAINTENANCE IN THE CRAWLSPACE, BUT IT ISN'T NECESSARY AT ALL POINTS. A DEPRESSION IN THE GROUND LEVEL PROVIDES THE SPACE, BUT ALSO MAKES IT SO THE FOUNDATION DOES NOT NEED TO BE DEEPER, SAVING ON EXCAVATION COSTS (WHICH ARE QUITE HIGH IN URBAN AREAS). THE DEPRESSION MAKES THE DRAIN NECESSARY.

3. FOOTINGS MOST GO DOWN BELOW THE FROST LINE, WHICH VARIES BY PLACE.

4. FOOTINGS MUST OF COURSE BE LOCATED WITHIN THE PROPERTY LINES, AND MUST BE OF A CERTAIN SIZE. SO THEY PROJECT INWARD.

5. A CONDITIONED CRAWLSPACE MAKES IT EASY TO HOOK UP MODULES ONSITE. IT ALSO SOLVES MANY ISSUES RELATED TO MOISTURE, FIRE, AND INSULATION.

6. PLANTER AREAS TO HAVE 4" CURBS. EACH SECTION MUST HAVE AT LEAST ONE DRAIN. IF SIDEWALK ALREADY DRAINS IN THE DIRECTION OF THE PLANTER, THE CURB MAY BE OMITTED OR HAVE GAPS TO PERMIT THE WATER FLOW INWARD. PLANTER COMPOSITION TO BE DETERMINED BY A LANDSCAPE DESIGNER.

ROOF NOTES →

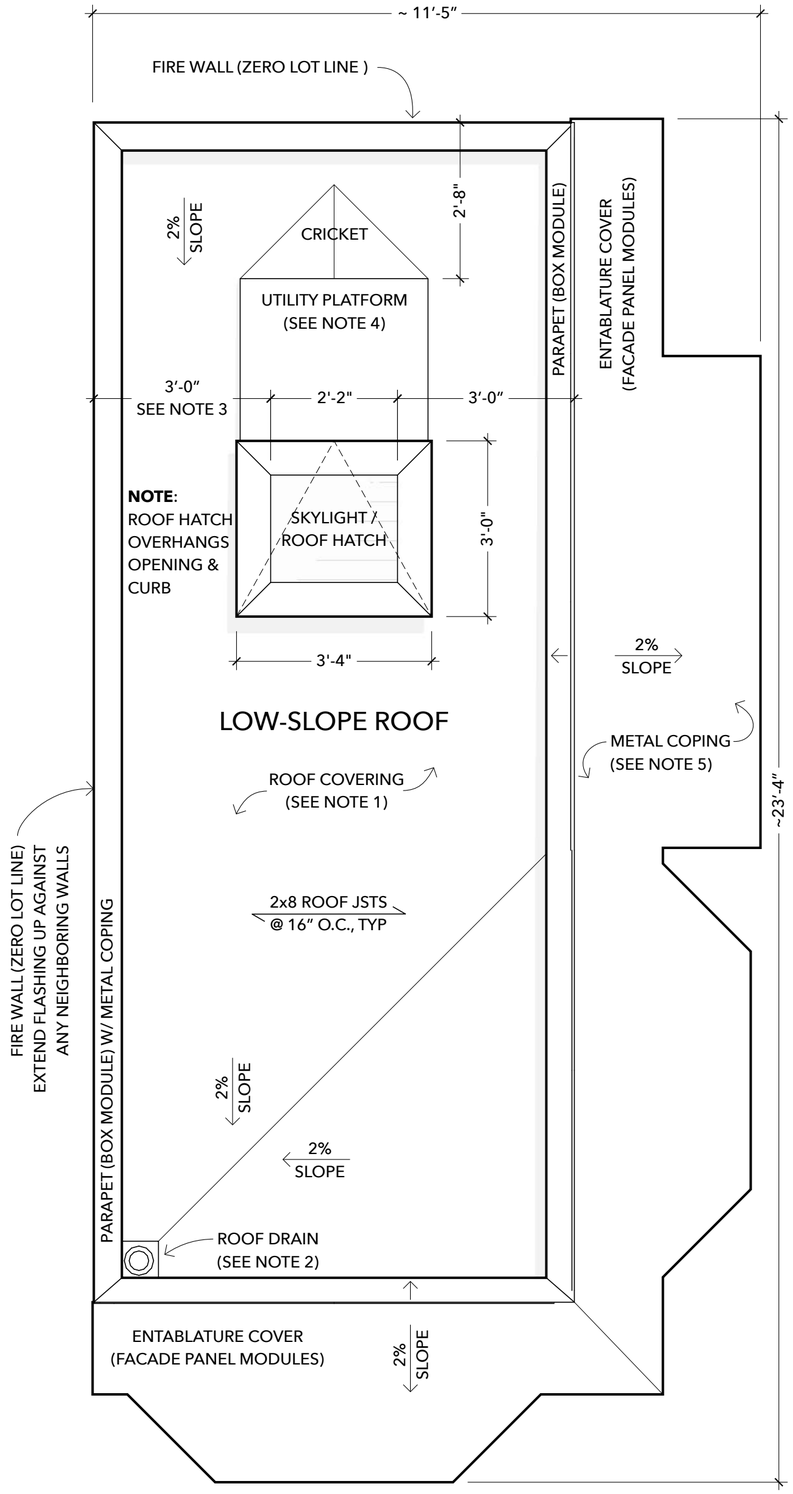
1. VARIOUS ROOFING MATERIALS ARE APPROPRIATE FOR A LOW-SLOPE ROOF, SO THE CHOICE WILL BE SITE- AND SITUATION-SPECIFIC. TPO OR EPDM MEMBRANES MAY BE THE SIMPLEST AND MOST UNIVERSALLY APPROPRIATE. THIS MAY ALSO BE A GREAT OPPORTUNITY FOR AN EXTENSIVE GREEN ROOF SYSTEM: WITH 4-6" OF ENGINEERED LIGHTWEIGHT SOIL OVER A DRAINAGE LAYER AND ROOT BARRIER, AND FIRE-RESISTANT VEGETATION (LIKE SUCCULENTS) PLANTED ABOVE.

2. ROOF WILL REQUIRE EITHER TWO DRAINS, OR A STANDARD DRAIN WITH AN EMERGENCY DRAIN, OR A SCUPPER ABOVE. HERE A SCUPPER IS ASSUMED.

3. MANY CODE REQUIREMENTS REQUIRE THINGS LIKE SKYLIGHTS, VENT PIPES, & UTILITY UNITS TO BE LOCATED AT LEAST 3 FEET FROM THE PROPERTY LINE. THAT'S THE MAIN IDEA BEHIND THE UTILITY PLATFORM. (IT DOESN'T HAVE TO BE RAISED.)

4. A MINI-SPLIT OUTDOOR UNIT (CONDENSER OR EVAPORATOR) CAN BE PLACED ON THE UTILITY PLATFORM. IT'S ALSO THE LIKELY LOCATION OF THE BATHROOM EXHAUST VENT AND PLUMBING VENT.

5. WHILE THE LOW-SLOPE ROOF WILL HAVE A DIFFERENT MATERIAL, THE PARAPET AND FACADE PANELS HAVE METAL COVERINGS, I.E. FLASHING, STANDING SEAM.



2 ROOF PLAN
SCALE: 1/2" = 1'-0"

© ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

+ Thank you to everyone who supports my work!

FOUNDATION PLAN & ROOF PLAN

14

ELEVATION NOTES

1. UNLESS OTHERWISE NOTED, SIDING MATERIAL IS OF FIBER CEMENT OR WOOD. VINYL SIDING IS STRICTLY FORBIDDEN. BUT PVC ORNAMENT IS ACCEPTABLE.

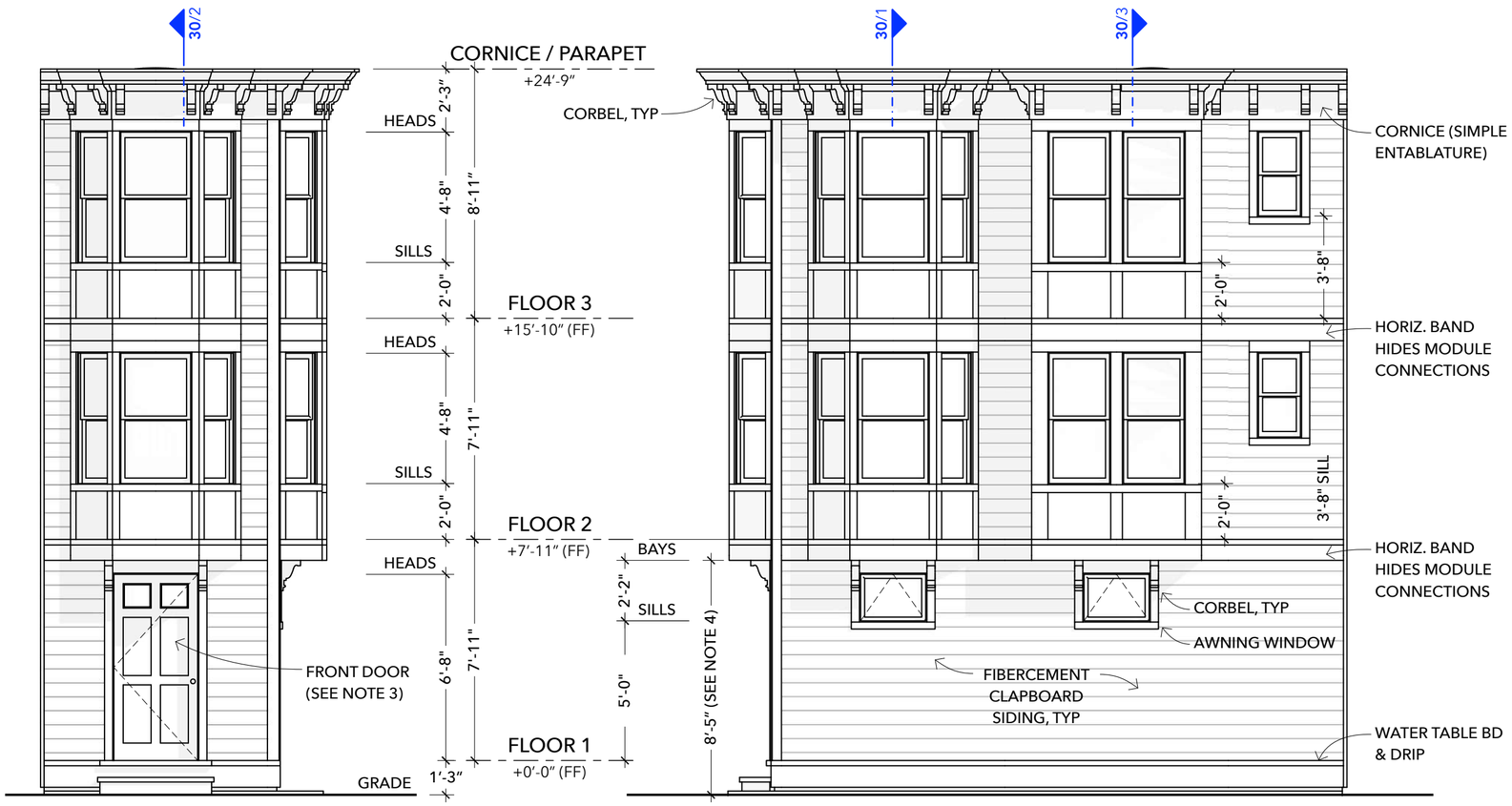
2. AT THE ZERO LOT LINE WALLS, THE SIDING IS USUALLY HIDDEN, SO IT CAN BE OF FIBERCEMENT PANELS OR CORRUGATED STEEL (PREINSTALLED ON THE MODULES).

3. FRONT DOOR HAS GLASS LITES (PREFERRABLY MORE IN BOUNDED VARIATION).

4. BAY WINDOWS ARE OFTEN PERMITTED TO CANTILEVER OVER A PROPERTY LINE INTO A RIGHT-OF-WAY, BUT USUALLY MUST BE AT LEAST 8′ ABOVE THE SIDEWALK.

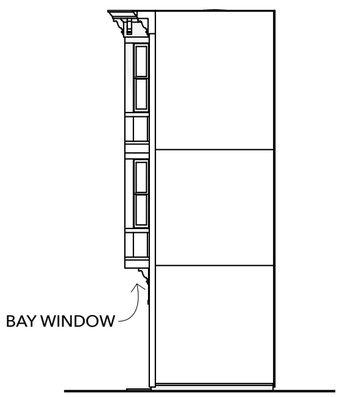
5. BEDROOM WINDOW IS AS SMALL AS IT CAN BE FOR EMERGENCY EXIT REQ'TS. THAT IS, A MINIMUM 5.7 FT² CLEAR AREA WHEN THE LOWER SASH IS OPEN.

6. MUCH OF THE CLAPBOARD SIDING IS TO BE INSTALLED ONSITE, TO COVER THE GAPS BETWEEN THE MODULES. THE CLAPBOARD COULD BE PRECUT. THE MORE COMPLEX TRIM ELEMENTS WOULD BE PREFABRICATED WITHIN THE MODULES.

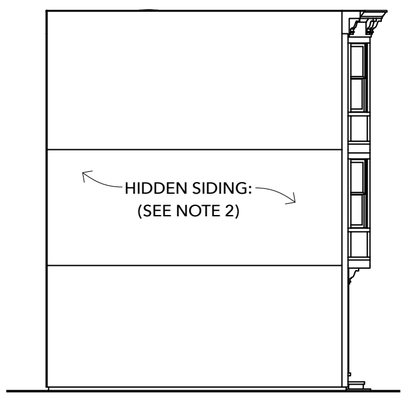


1 FRONT ELEVATION
SCALE: 1/4″ = 1′-0″

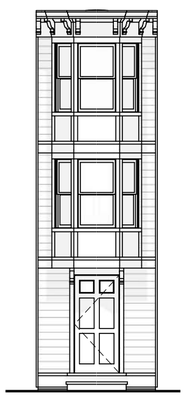
2 RIGHT ELEVATION
SCALE: 1/4″ = 1′-0″



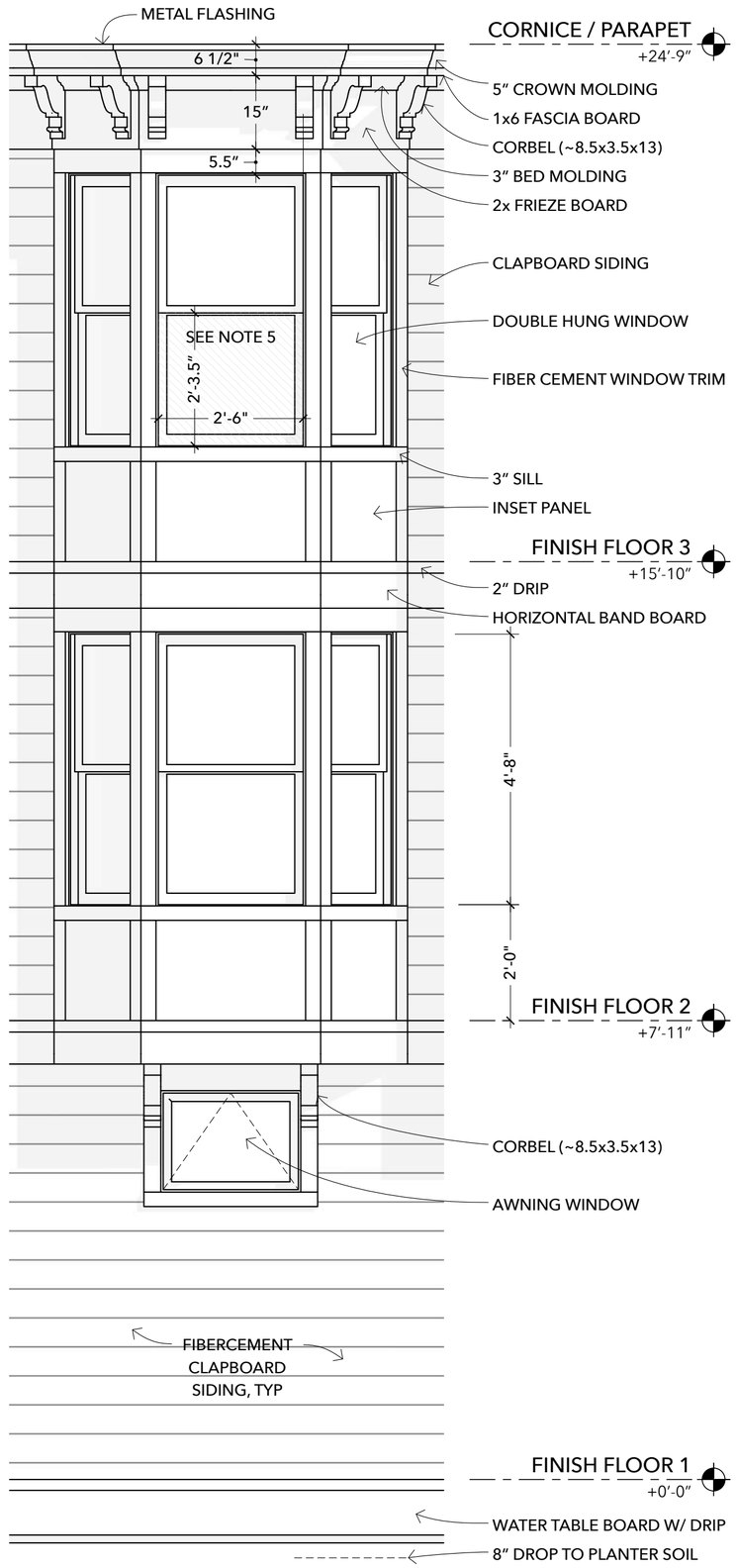
3 BACK ELEVATION (BLANK FIREWALL)
SCALE: 1/8″ = 1′-0″



4 LEFT ELEVATION (BLANK FIREWALL)
SCALE: 1/8″ = 1′-0″ NOTE: COULD BE THE RIGHT



5 ALT: FRONT ELEVATION
1/8″ = 1′-0″ BOUNDED VARIATION



6 DETAIL ELEVATION
SCALE: 1/2″ = 1′-0″ NOTE: COULD BE THE FRONT

ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

+ Thank you to everyone who supports my work!

ELEVATION VIEWS

SECTION NOTES

1. THE SPIRAL STAIRCASE REQUIRES A 6′-6″ MINIMUM HEAD CLEARANCE BY CODE (THERE IS NOT MUCH WIGGLE ROOM IN THIS DESIGN).

2. SKYLIGHT/STAIRCASE AREA HAS WALL RUNGS/HANDHOLDS TO MAKE IT EASIER TO REACH THE SKYLIGHT (LIKE A BUILT-IN LADDER) AND TO SERVE AS GRAB BARS. RUNGS CAN ALSO BE FOR OTHER FUNCTIONS. ENSURE ADEQUATE BLOCKING.

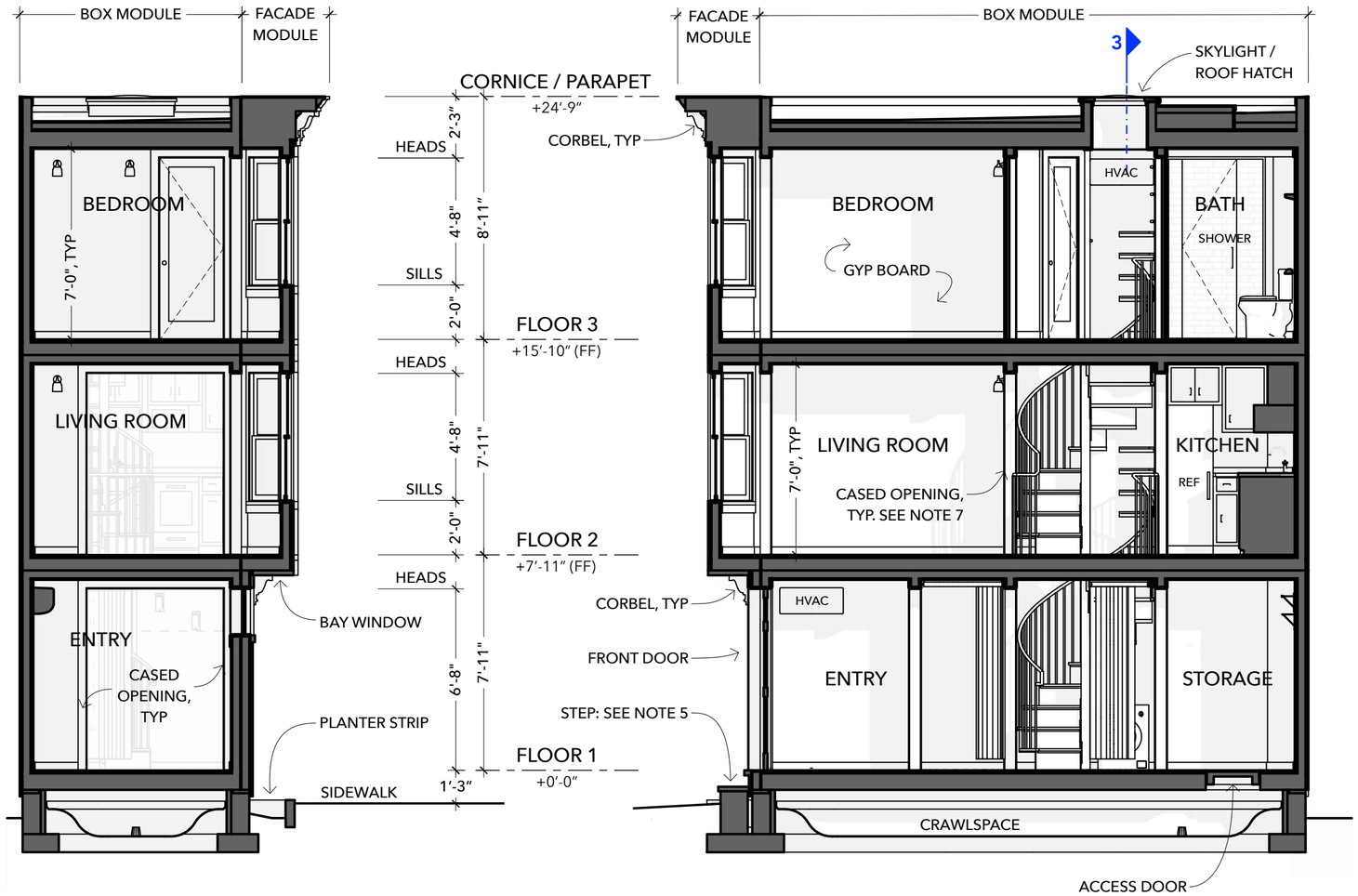
3. **STRUCTURAL SYSTEMS:**
WALLS – 2x4 STUDS @ 16″ O.C. (& .5″ EXTERIOR PLYWOOD SHEATHING)
FLOOR 1 – 2x8 JOISTS @ 16″ O.C. (& .75″ PLYWOOD SUBFLOOR)
FLOOR 2 & 3 – 2x6 JOISTS @ 16″ O.C. (MAYBE 12″ O.C. DUE TO TRANSPORT STRESS.)
CEILINGS – 2x4 JOISTS @ 16″ O.C. (OR 12″, ALIGNED WITH FLOOR JOISTS)
ROOF – 2x8 JOISTS @ 16″ O.C. (& .75″ PLYWOOD SUBFLOOR)
FOUNDATION – 8″ CONCRETE STEM WALLS ON FOOTINGS

4. **INSULATION:**
WALLS – 3.5″ MINERAL WOOL BATTS IN BOX MODULES. ALSO IN FACADE PANELS.
FOUNDATION: 2″ RIGID XPS FOAM AT CONDITIONED CRAWLSPACE.
ROOF: 7″ MINERAL WOOL BATTS WITHIN JOISTS. ABOVE: 3″ RIGID XPS (STAGGERED SEAMS) W/ TAPERED XPS ABOVE. TOTAL ROOF INSULATION IS ABOUT R-49. REPLACE BATT INSULATION WITH SPRAY FOAM IF MORE R-VALUE IS NEEDED.

5. STEP IS ADDED AT FRONT DOOR TO SIMPLIFY THE FOUNDATION FOR THE MODULAR ASSEMBLY. IF THE HOUSE IS RAISED ANY MORE OFF OF THE GROUND, THEN IT WILL REQUIRE A 36″ DOOR LANDING IN ADDITION TO THAT 10″ TREAD. SO DON'T RAISE THE FLOOR UNLESS YOU HAVE ABOUT 4 FEET OF MORE LAND.

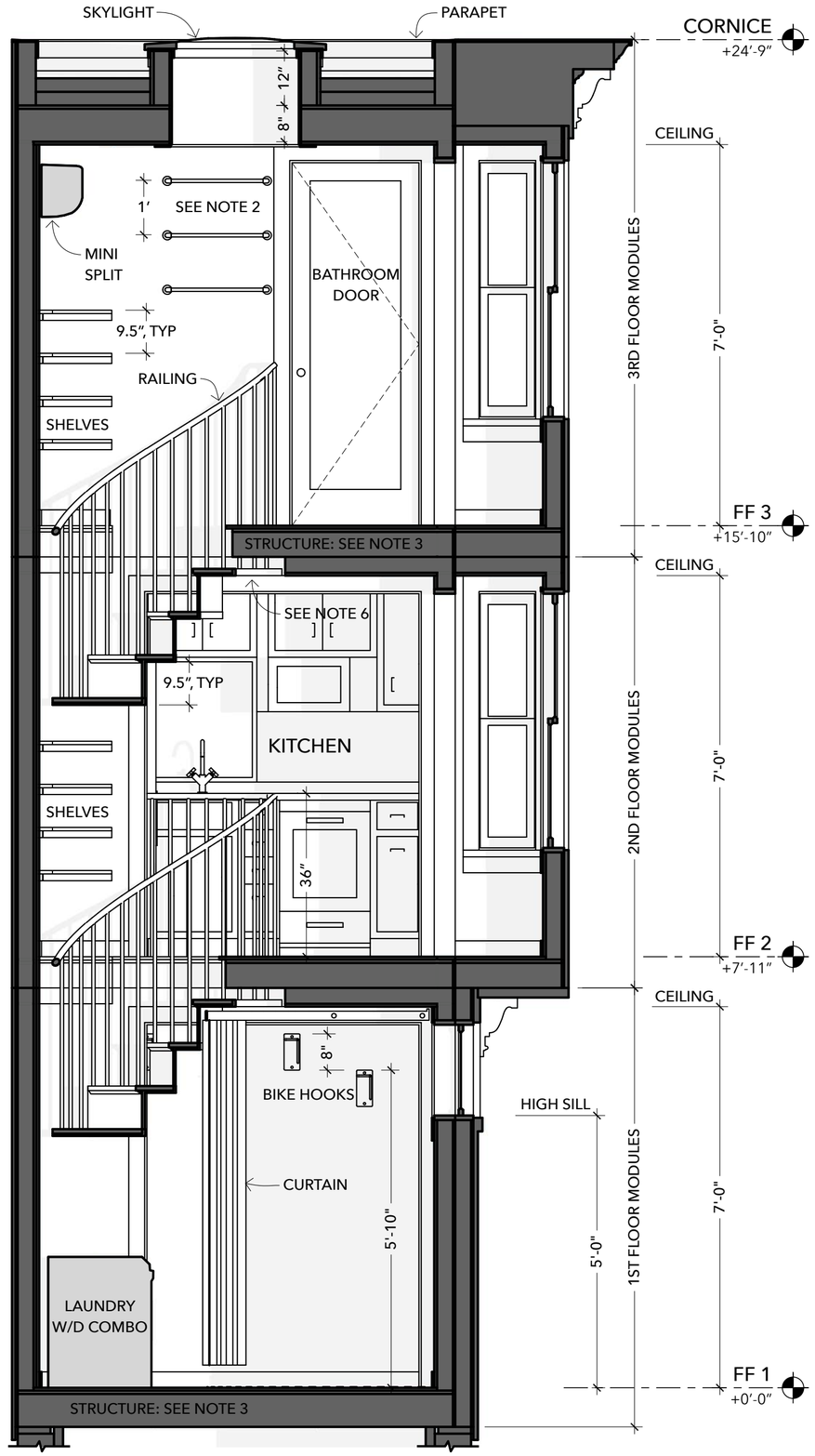
6. CEILINGS ARE AT THE MINIMUM HEIGHT ALLOWED BY CODE (7 FEET) AND THE SPIRAL STAIRS REQUIRE A 6′-6″ HEAD CLEARANCE. THAT IS WHY THE CEILINGS ARE SLIGHTLY INSET FROM THE FLOORS, FROM ONE MODULE TO ANOTHER.

7. CASED OPENINGS AT INTERIOR WALLS STIFFEN AND BUTTRESS THE STRUCTURE. THIS MAY BE PARTICULARLY USEFUL DUE TO THE RELATIVELY SMALL STRUCTURAL MEMBERS USED FOR THE FLOOR AND CEILING JOISTS. THE CASED OPENING HEADERS ARE TO BE COMPOSED OF TWO 2x8s WITH .5″ PLYWOOD IN BETWEEN.



1 TRANSVERSE SECTION
SCALE: 1/4″ = 1′-0″

2 LONGITUDINAL SECTION
SCALE: 1/4″ = 1′-0″



3 DETAIL SECTION @ STAIRCASE
SCALE: 1/2″ = 1′-0″

ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

THE BOOKEND VARIATION

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

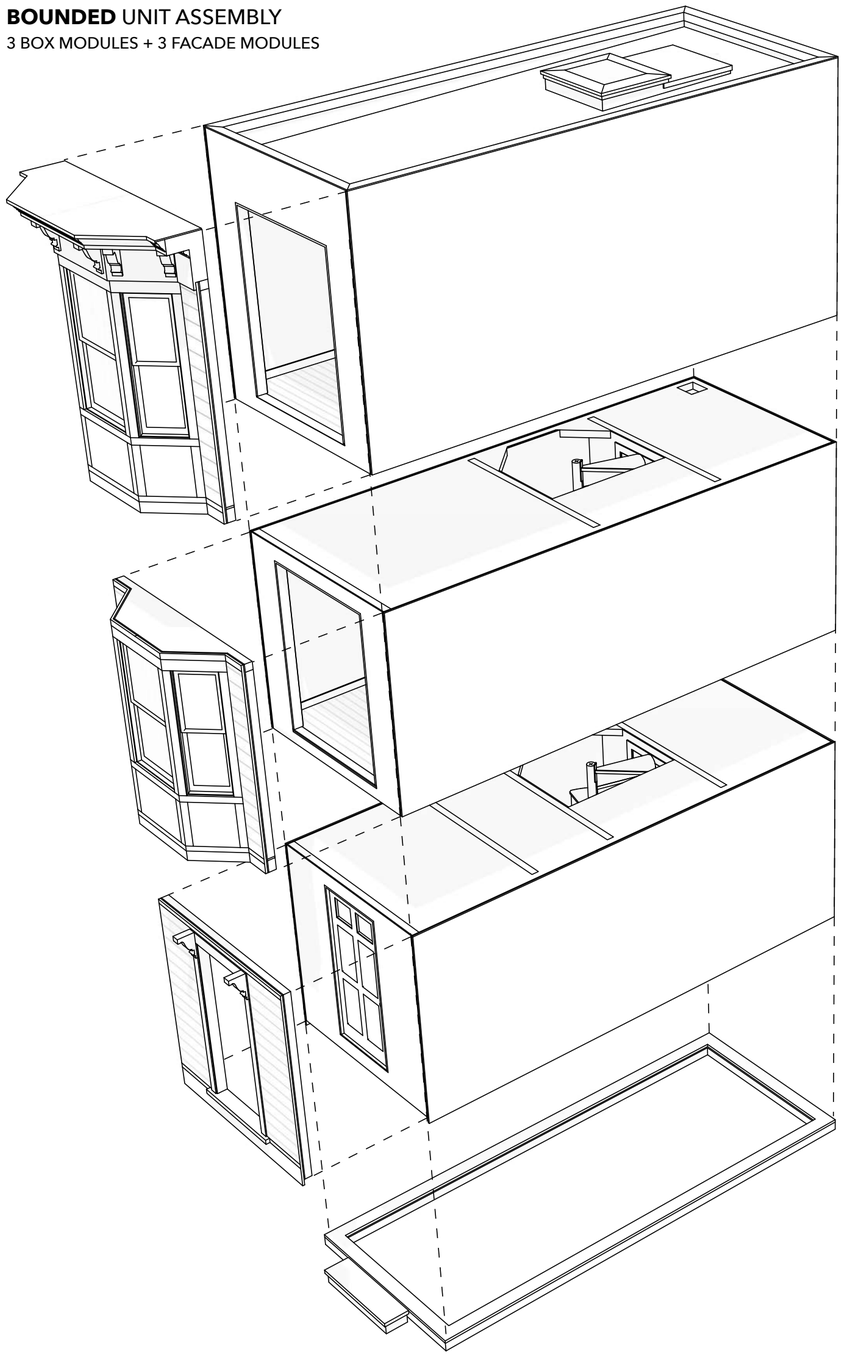
+ Thank you to everyone who supports my work!

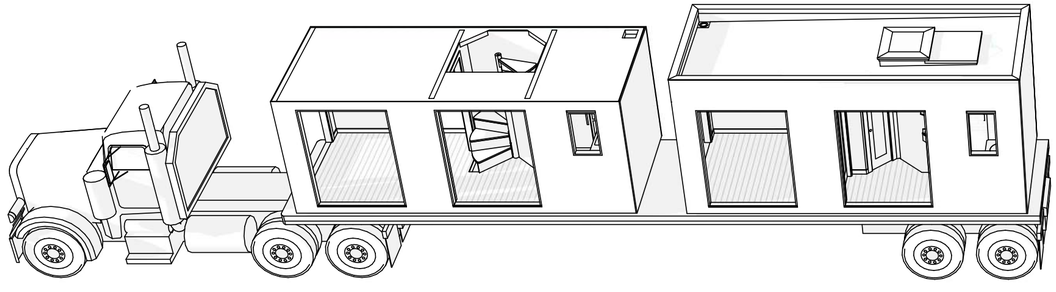
SECTION VIEWS

ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

BOUNDED UNIT ASSEMBLY

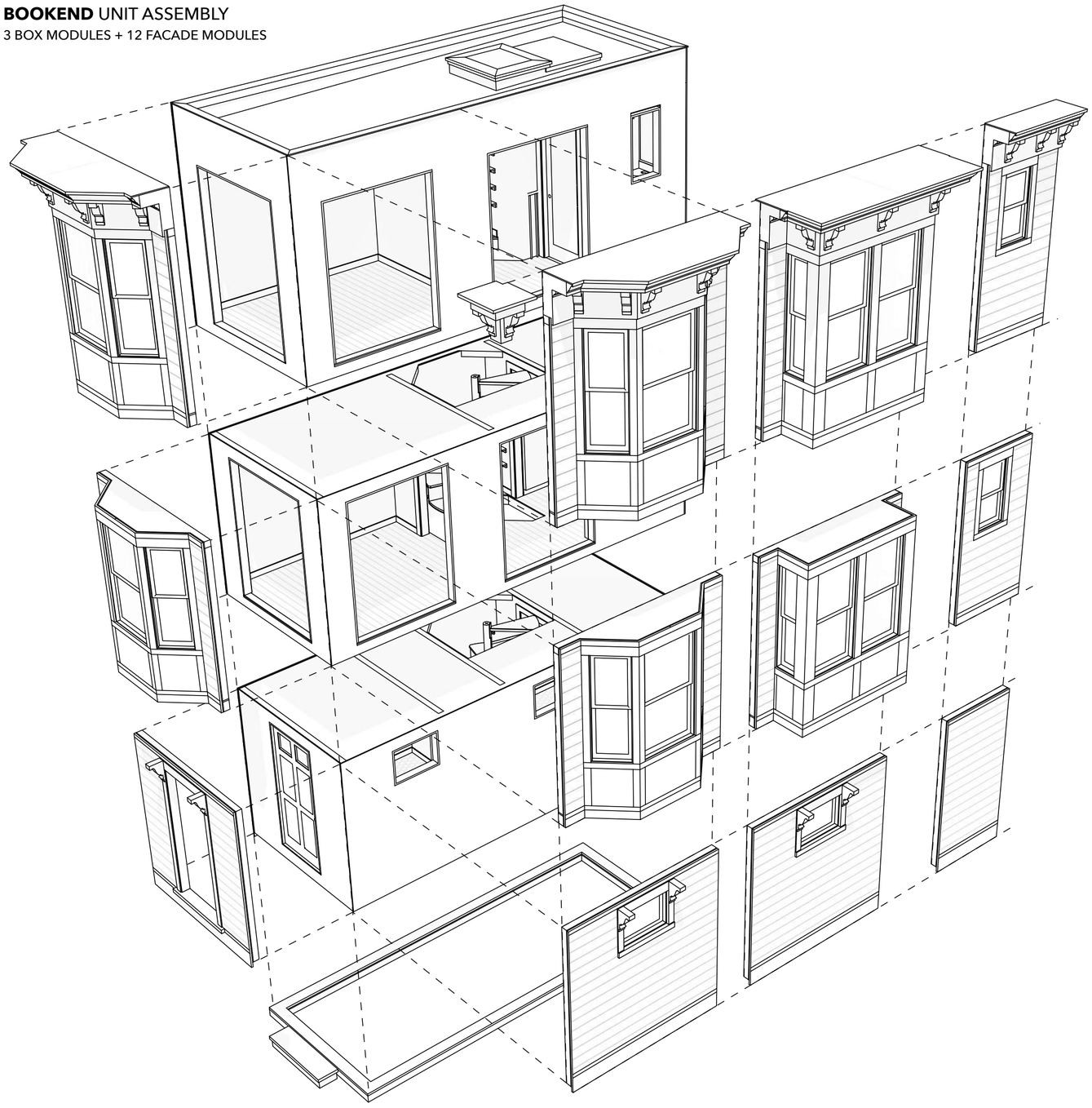
3 BOX MODULES + 3 FACADE MODULES

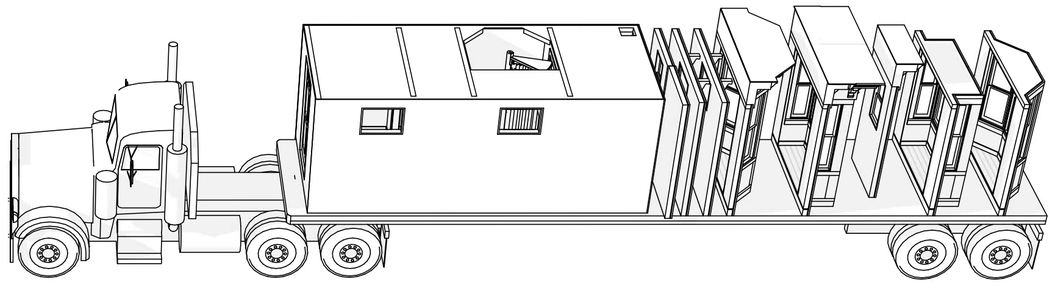




BOOKEND UNIT ASSEMBLY

3 BOX MODULES + 12 FACADE MODULES





FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

BOOKEND & BOUNDED UNITS

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

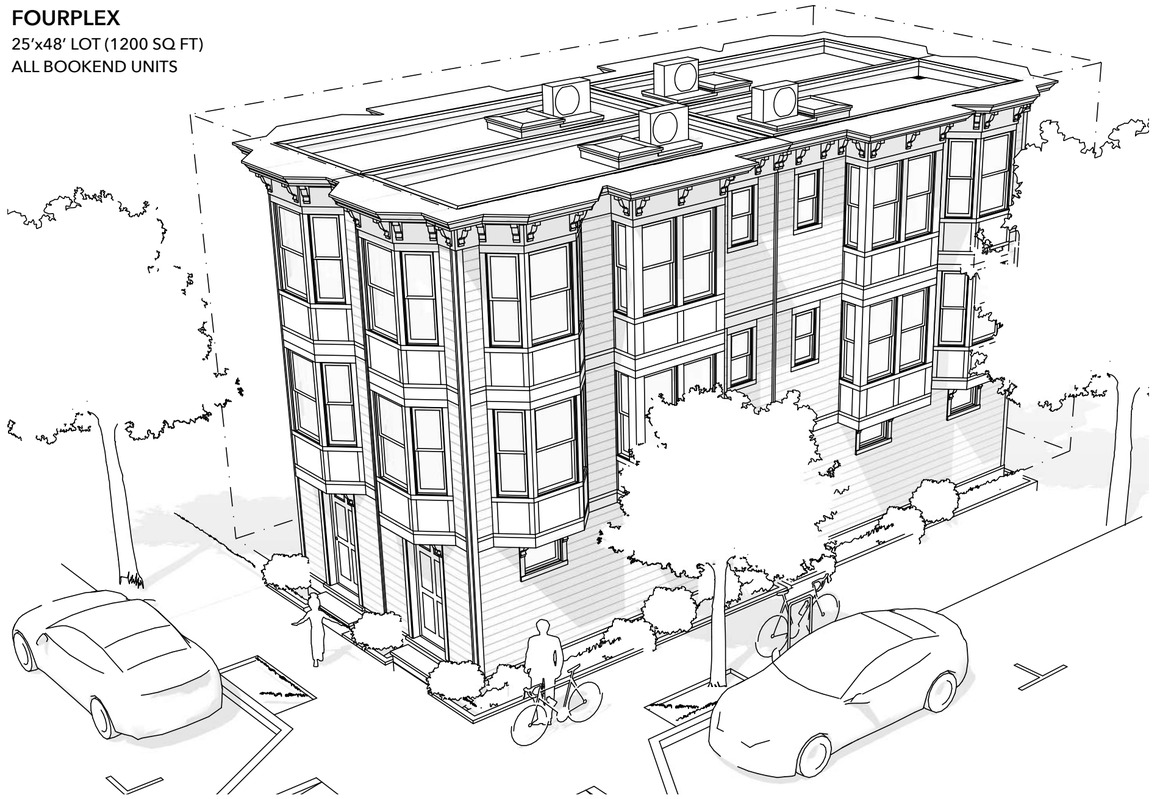
\+ Thank you to everyone who supports my work!

MODULAR ASSEMBLY

40

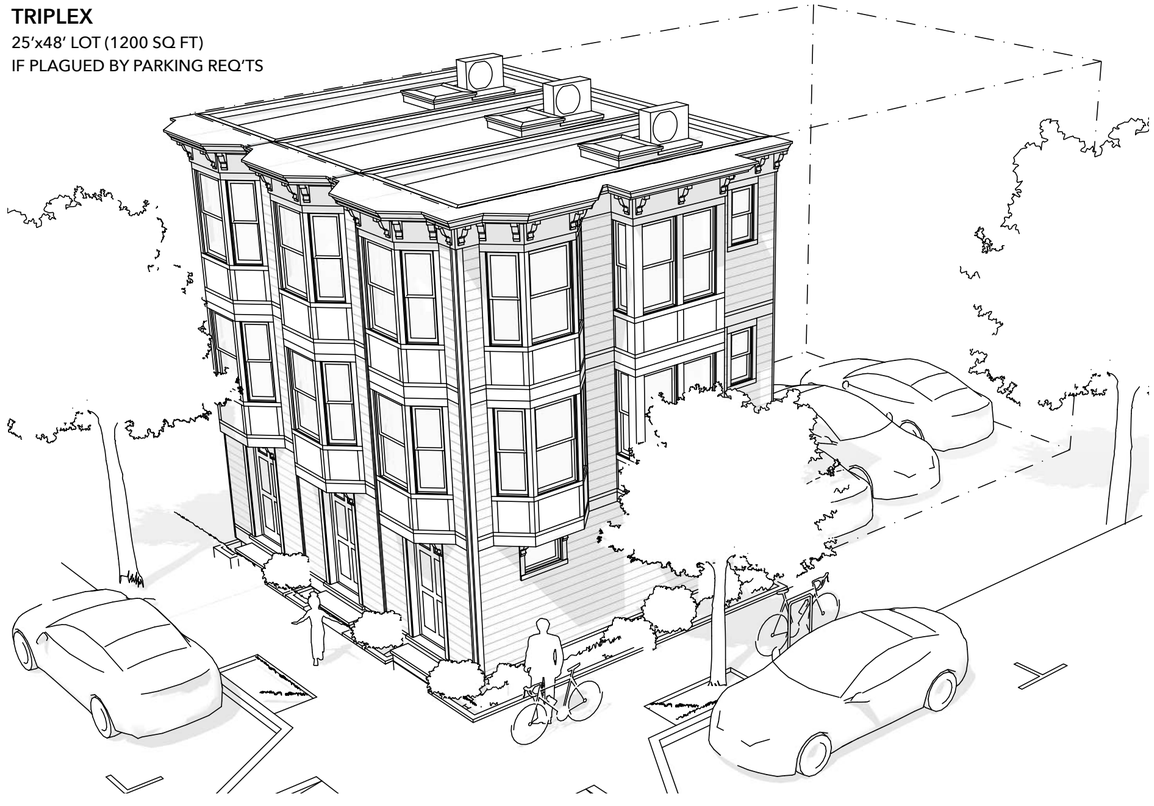
© ATTRIBUTION SHARE-ALIKE BY JAY OSBORNE. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. THIS DESIGN AND ITS RELATED DOCUMENTS ARE PROVIDED "AS IS" WITH NO GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. FREEFARMHOUSE & JAY OSBORNE DISCLAIM LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USING THIS WORK.

FOURPLEX
25'x48' LOT (1200 SQ FT)
ALL BOOKEND UNITS



SIXPLEX
24'x50' LOT (1200 SQ FT)
RHYTHM NEAR REDUNDANCY

TRIPLEX
25'x48' LOT (1200 SQ FT)
IF PLAGUED BY PARKING REQ'TS



TWO TRIPLEXES
25'x48' LOT (1200 SQ FT)
RIGHT-OF-WAYS ON 3 SIDES

FreeFarmhouse

OPEN-SOURCE ARCHITECTURAL DRAWINGS
You may share, copy, and customize these blueprints.
License: www.CreativeCommons.org/licenses/BY-SA/4.0
Some rights reserved. No promises or guarantees given.
More designs available at www.FreeFarmhouse.com

A DESIGN BY JAY OSBORNE

BICYCLE TOWNHOUSE

BOOKEND & BOUNDED UNITS

1 **2024-12-20** FIRST DRAFT (ONLY ON PATREON)

\+ Thank you to everyone who supports my work!

COMBINATION EXAMPLES

50